

Application No. 09/672,812  
Reply to the Final Office Action mailed February 27, 2004  
and to the Advisory Action mailed July 13, 2004

Patent  
Attorney Docket No. 85773-332

### I. AMENDMENTS TO THE CLAIMS

Please find below a listing of claims that will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A feed arrangement for a telephone subscriber loop having a plurality of conductors, comprising:
  - a) an output for connection to the conductors of the subscriber loop to impress across the conductors ~~of the loop~~ a voltage differential; and
  - b) a control element operative for:
    - i. deriving a data element indicative of a rate of change of a current in the subscriber loop;
    - ii. processing the data element indicative of a rate of change of a current in the subscriber loop to detect ~~a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
    - iii. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop,
    - iv. regulating a magnitude of a current in the subscriber loop to ~~[[a]]~~ the target loop current, ~~value selected in a set of target values in dependence upon a number of CPEs active in the telephone subscriber loop.~~
2. (currently amended) A feed arrangement as defined in claim 1, wherein said control element being operative for determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises said control element being operative for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop. ~~is responsive to an actuation of one CPE in the telephone subscriber loop that already contains at least one other active CPE, to effect a~~

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~~change in the target value at which the current in the subscriber loop is regulated.~~

3. (currently amended) A feed arrangement as defined in claim 2, wherein the target value loop current selected determined by said control element when A CPEs are active in the telephone subscriber loop is higher than the target value loop current selected determined by said control element when B CPEs are active in the telephone subscriber loop, where  $A > B$ .
4. (currently amended) A feed arrangement as defined in claim 3, wherein A is at least 1.
5. (currently amended) A feed arrangement as defined in claim 3, wherein the telephone subscriber loop includes a tip conductor and a ring conductor, a CPE active in the telephone subscriber loop being connected across the tip conductor and the ring conductor.
6. (original) A feed arrangement as defined in claim 5, wherein said control element includes at least one control input for receiving an input control signal indicative of the magnitude of a current in the tip conductor.
7. (original) A feed arrangement as defined in claim 6, wherein:
  - a) said control input is a first control input;
  - b) said input control signal is a first input control signal; and
  - c) said control element includes a second control input for receiving a second input control signal indicative of a magnitude of a current in the ring conductor.
8. (currently amended) A feed arrangement as defined in claim 7, wherein:
  - a) said feed arrangement includes an input for connection to a power supply that generates an output voltage applied to the input of said feed arrangement;

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- b) said control element is responsive to the first and second input control signals to generate an output control signal;
- c) said control element includes an output to release the output control signal; and
- d) the output control signal being suitable for controlling the output voltage of the power supply such as to bring about in the telephone subscriber loop a current having a magnitude that corresponds generally to a target value loop current selected determined by said control element ~~in said set of target values.~~

9. (currently amended) In combination:

- a) a power supply;
- b) a feed arrangement for a telephone subscriber loop having a plurality of conductors, including:
  - i) an input connected to said power supply;
  - ii) an output for connection to the conductors of the subscriber loop to impress across the conductors ~~of the subscriber loop~~ a voltage differential; and
  - iii) a control element operative for:
    - a. deriving a data element indicative of a rate of change of a current in the subscriber loop;
    - b. processing the data element indicative of a rate of change of a current in the subscriber loop to ~~detect a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
    - c. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop,
    - d. regulating a magnitude of a current in the subscriber loop to ~~[[a]]~~ the target value loop current, selected in a set of target values in

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~~dependence upon a number of CPEs active in the telephone  
subscriber loop.~~

10. (currently amended) A combination as defined in claim 9, wherein:
- a) said control element includes an output to release an output control signal;
  - b) said output being in communication with said power supply; and
  - c) said power supply being responsive to the output control signal to impress a voltage differential at said input to bring about in the subscriber loop a current having a magnitude corresponding generally to the target loop current value selected in the set of target values.
11. (currently amended) A combination as defined in claim ~~40~~ 9, wherein said control element being operative for determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises said control element being operative for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop. ~~is responsive to an actuation of at least one CPE in the telephone subscriber loop that already contains at least one other active CPE, to effect a change in the target value at which the current in the subscriber loop is regulated.~~
12. (currently amended) A combination as defined in claim 11, wherein the target value loop current selected determined by said control element when A CPEs are active in the telephone subscriber loop is higher than the target value loop current selected determined by said control element when B CPEs are active in the telephone subscriber loop, where  $A > B$ .
13. (currently amended) A combination as defined in claim 12, wherein A is at least 1.

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14. (currently amended) A combination as defined in claim 13, wherein the telephone subscriber loop includes a tip conductor and a ring conductor, a CPE active in the telephone subscriber loop being connected across the tip conductor and the ring conductor.
15. (currently amended) A combination as defined in claim 14, wherein said control element includes at least one control input for receiving an input control signal indicative of a magnitude of a current in the tip conductor.
16. (original) A combination as defined in claim 15, wherein:
- a) said control input is a first control input;
  - b) said input control signal is a first input control signal; and
  - c) said control element includes a second control input for receiving a second input control signal indicative of a magnitude of a current in the ring conductor.
17. (currently amended) A combination as defined in claim 16, wherein said control element is responsive to the first and second input control signals to generate the output control signal.
18. (currently amended) A method for regulating ~~[[the]]~~ a magnitude of a current in a subscriber loop, comprising:
- a) ~~regulating the magnitude of the current to a first target value when a first CPE is active in the subscriber loop;~~
  - b)a) deriving a data element indicative of a rate of change of ~~[[a]]~~ the current in the subscriber loop;
  - e)b) processing the data element indicative of a rate of change of ~~[[a]]~~ the current in the subscriber loop to ~~detect an increase~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
  - d)c) determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to an increase

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~~in the number of CPEs active in the telephone subscriber loop;~~

- d) regulating the magnitude of the current to ~~a second~~ the target value loop current, ~~higher than the first target value when at least one additional CPE becomes active in the subscriber loop such that the subscriber loop feeds at least two CPEs simultaneously.~~

19. (currently amended) A feed arrangement for a telephone subscriber loop having a plurality of conductors, comprising:

- a) output means for connection to the conductors of the subscriber loop to impress across the conductors ~~of the loop~~ a voltage differential; and
- b) control means for:
- i. deriving a data element indicative of a rate of change of a current in the subscriber loop;
  - ii. processing the data element indicative of a rate of change of a current in the subscriber loop to ~~detect a change~~ derive a variation in ~~[[the]]~~ a number of CPEs active in the telephone subscriber loop;
  - iii. determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop; and in response to a change in the number of CPEs active in the telephone subscriber loop.
  - iv. regulating a magnitude of a current in the subscriber loop to ~~[[a]] the target loop current. value selected in a set of target values in dependence upon a number of CPEs active in the telephone subscriber loop.~~

20. (new) A feed arrangement as defined in claim 1, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.

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21. (new) A combination as defined in claim 9, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
22. (new) A method as defined in claim 18, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at a feed arrangement supplying the current in the subscriber loop when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
23. (new) A feed arrangement as defined in claim 19, wherein the target loop current is sufficiently high to power a new number of CPEs active in the subscriber loop reflecting the variation in a number of CPEs active in the subscriber loop and sufficiently low to result in a decrease in power consumption at the feed arrangement when the variation in a number of CPEs active in the subscriber loop is a decrease in a number of CPEs active in the subscriber loop.
24. (new) A method as defined in claim 18, wherein said determining a target loop current on the basis of the variation in a number of CPEs active in the subscriber loop comprises selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop.
25. (new) A feed arrangement as defined in claim 19, wherein said control means for determining a target loop current on the basis of the variation in a number of

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CPEs active in the subscriber loop comprises means for selecting the target loop current from a set of target loop currents, each target loop current in said set of target loop currents being associated to a respective variation in a number of CPEs active in the subscriber loop.